

An Enumeration of the Chinese Astragali.

With Descriptions of New Species.

BY

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A. SPECIES NOVAE.

Astragalus Arnoldianus, N. D. Simpson. Sp. nov., ab *A. frigido*, A. Gray, stipulis parvis angustis, caulibus inferne purpureis nigro-hirsutis, foliolis pilis strictis instructis distinguendus.

Herba perennis, erecta, pilis basifixis instructa; caules circa 36 cm. alti, valde striati inferne purpurascens, pilis nigris albisque mixtis vestiti, superne canaliculati, pallidi pilis nigris adpressis obtekti. *Folia* ad 10 cm. longa, petiolis 2.7 cm. longis inclusis, rhachide pilis nigris adpressis sparse instructa, 4-6-juga; foliola opposita vel alterna, obovata, 22 mm. longa, 15 mm. lata, apice obtusa vel retusa, petiolulis dense nigro-hirsutis 1.5 mm. longis suffulta, utrinque pilis albis nigrisque strictis adpressis instructa; stipulae infimae erectae, ovatae, acutae, 7 mm. longae, medianae ovato-oblongae, 7 mm. longae, 2.5 mm. latae, a petiolo liberae, superiores lanceolatae, 5 mm. longae, angustae, vix 1.5 mm. latae. *Racemi* laxi, ad 17-flori, pedicellis ad 8.5 cm. longis folia saepe fere aequantibus pilis nigris dense instructis; bracteae lanceolatae, 4 mm. longae, ad 1.5 mm. latae; bracteolae 2 lineares, minutae, vix 1.5 mm. longae; pedicelli 3 mm. longi, densissime nigro-hirsuti. *Calyx* late tubuloso-campanulatus, ad 9 mm. longus, pallide viridis, basi nigrescens, pilis nigris minutis instructis, dentibus brevibus ad 1 mm. longis subaequalibus. *Corolla* calycis tubo duplo longior; vexillum obovatum, 18 mm. longum, 8.5 mm. latum, apice acutiusculum, basi in unguem 2.5 mm. latum sensim productum; alae 18 mm. longae, 2.5 mm. latae, lamina parva supra auriculam angustam gibba apice acuta ungui 10.5 mm. longo; carina 15 mm. longa, 3 mm. lata, apice obtusa, auricula obtusa, ungui 10 mm. longo. *Stamina* diadelphe, filamentis inaequaliter connatis. *Ovarium* stipitatum, pauci-ovulatum, uniloculare, dense pilis albis nigrisque hirsutum; stylus brevis, stigmatum capitato.

[Notes, R.B.G., Edin., No. XXXIX, Jan. 1915.]

Szechuen: flowers pale yellow. Habitat, grasslands. West of Kuan Heien. Alt. 3000 m. August 1908. Wilson, 3797! Herb. Kew.

Astragalus camptodontoides, N. D. Simpson. Sp. nov., ab *A. camptodonto*, Franch., stipulis linearibus, foliolis anguste oblongis mucronatis subtus pilis albis dense vestitis, bracteolis tubum aequantibus, calycis dentibus anguste linearibus saepe subulatis tubum excedentibus distinguendus.

Herba gracilis, caulibus decumbentibus, pilis albis adpressis non furfuraceis dense vestitis. *Folia* alternipinnata, 5-7-juga, ad 4 cm. longa, subsessilia; foliola anguste oblonga, utrinque attenuata, petiolulis 1 mm. longis, mucronata, majora 10 mm. longa, 2.5 mm. lata, supra glabra subtus, rhachide petiulisque pilis albis brevibus dense vestitis; stipulae caulinae liberae, anguste lanceolatae, acuminatae, erectae vel reflexae, ad 5 mm. longae, subtus dense pilosae. *Racemi* laxi 4-flori, pedunculis 2 cm. longis pilis nigris albisque dense vestitis; bractae lanceolatae, acuminatae, ad 6 mm. longae; bracteolae 2, ad 4.5 mm. longae; pedicelli ad 3 mm. longi, pilis nigris densissime instructi. *Calyx* campanulatus, circiter 3.5 mm. longus, pilis nigris adpressis sparse obtectus, dentibus anguste linearibus saepe fere subulatis ad 5.5 mm. longis. *Corolla* calycem multo excedens, violaceus (ex Delavay); vexillum suborbiculare, 15.5 mm. longum, 11 mm. latum, in unguem angustum 4 mm. longum abrupte contractum, emarginatum, glabrum, alas carinamque superans; alae 13 mm. longae, 3.5 mm. latae, lamina apice obtusa basi obtuse auriculata in unguem 4 mm. latum attenuata; carina 14.5 mm. longa, 4.5 mm. lata, ungui 4 mm. longo. *Stamina* diadelpa. *Ovarium* stipitatum, glabrum, multi-ovulatum; stigma barbatum.

Yunnan: Lon Kong, Delavay, 936! Herb. Kew.

Astragalus Craibianus, N. D. Simpson. Sp. nov., ab *A. coronilloide*, Ulbrich, caulibus humilioribus, racemis 4-floris subumbellatis, bracteis circa 5 mm. longis, calycis dentibus basi 1.5 mm. latis, corolla circa 15 mm. longa facile distinguendus.

Herba humilis, rhizomate crasso multi-ramoso, multicaulis, caulibus brevibus glabrescentibus. *Folia* ad 4 cm. longa, petiolis inclusis, imparipinnata, 5-10-juga; foliola suborbicularia vel elliptico-oblonga, majora 8 mm. longa, 4 mm. lata, obtusa vel subacuta, mucronulata, distincte petiululata, nervis conspicuis, supra glabra, subtus pilis patulis albis fuscisque laxè oblecta; stipulae liberae vel leviter connatae, magnae, lanceolatae, inferiores late ovatae, acutiusculae, ad 6.5 mm. longae

et 2.5 mm. latae, utrinque glabrae, margine pilosae, intus basi minute glandulosae. *Racemi* subumbellati, 4-flori, pedunculis ad 4.5 cm. longis folia subaequantibus parce pilosis; bracteae lineares, acutae, ad 5 mm. longae et 1.5 mm. latae, pilis paucis instructae; bracteolae nullae; pedicelli 3 mm. longi, densissime nigro-pilosi. *Calyx* campanulatus, ad 4 mm. longus et 3 mm. latus, pilis fuscis albisque instructus dentibus triangularibus ad 3 mm. longis et 1.5 mm. latis pilis patulis dense vestitis. *Corolla* calycem multo superans; vexillum suborbiculare, margine integro, 16 mm. longum, ungui 6 mm. longo incluso, 10 mm. latum; alae 16 mm. longae, 4 mm. latae, apice integrae, auricula angustissima 3 mm. longa, ungui 5.5 mm. longo; carina 15 mm. longa, 4 mm. lata, obtuse auriculata, ungui 6 mm. longo. *Stamina* diadelpa. *Ovarium* longe pilosum, stipite 6 mm. longo; stigma pilis brevibus cinctum.

Western China: alt. 3900 m. "Flowers bronzy yellow, on heaths." Wilson, 3424! (type), 3445! Herb. Kew.

Astragalus Duclouxii, N. D. Simpson. Sp. nov., ab *A. mongolico*, Bge., caulibus pilis longis vestitis, calycis dentibus inaequalibus late lanceolatis, bracteis deciduis, vexillo ovato in unguem subito contracto, alis magni-auriculatis distinguendus.

Caulis erectus, ultra 30 cm. altus, leviter striatus, inferne glabrescens, superne pilis albis patulis dense vestitus. *Folia* circa 13-juga, 3 cm. longa, petiolis 1.5 cm. longis; foliola breviter petiolulata, elliptico-oblonga, mucronulata, ad 15 mm. longa, 7 mm. lata, supra glabrescentia, subtus pilis albis basifixis dense instructa; stipulae erectae, caulinae, connatae, late ovatae, acuminatae, ad 9 mm. longae, 4.5 mm. latae, supra glabrae subtus margineque pilis paucis vestitae. *Racemi* elongati, multiflori, pedunculis circa 5 cm. longis, pilis albis patulis instructis; bracteae deciduae, lanceolatae, acuminatae, 4 mm. longae, pilis longis dense vestitae; bracteolae binae, lineares, parvae, 2 mm. longae; pedicelli 3 mm. longi, dense pilosi. *Calyx* campanulatus, 6.5 mm. longus, pilis albis longis instructus, dentibus superioribus 3 mm. longis inferioribus vix 4 mm. longis. *Corolla* glabra, calycem superans; vexillum ovatum, 15 mm. longum (unghi 4 mm. longo incluso) 7 mm. latum, apice emarginatum, alas carinamque subaequans; alae 15 mm. longae, 2 mm. latae, auricula magna obtusa 2 mm. longa 1.5 mm. lata, unghi 8 mm. longo; carina vix 15 mm. longa, 3 mm. lata, auricula obtusa, unghi 8 mm. longo. *Stamina* diadelpa. *Ovarium* longe stipitatum, uniloculare, circa 14-ovulatum; glabrum; stigma nudum.

Yunnan:—Ducloux, 799! Herb. Kew.

Astragalus fangensis, N. D. Simpson. Sp. nov., ab *A. tungense*, N. D. Simpson, foliis pedunculos multo excedentibus, calycis dentibus inaequalibus 0.5–1 mm. longis, vexilli ungui 2 mm. lato, carinae lamina 9.5 mm. longa distinguendus.

Herba caespitosa, multicaulis, rhizomate crasso descendente; caules ad 11 cm. longi, pilis albis sparse vestiti. *Folia* ad 6 cm. longa, petiolis circa 1 cm. longis inclusis, imparipinnata, 5–8-foliolata; foliola opposita, obovata, apice retusa, ad 9 mm. longa, 5 mm. lata, supra glabra, subtus margineque pilis albis paucis instructa; petioluli vix 1 mm. longi, basi glandulis paucis instructi; stipulae parvae, triangulares, inter se et a petiolis liberae, 2.5 mm. longae, 2 mm. latae. *Racemi* laxi, 3–4-flori, pedunculis brevibus 1–1.3 cm. longis, pilis albis brevissimis sparse instructis; bracteae vix 1 mm. longae, pedicellos aequantes; bracteolae nullae. *Calyx* 3 mm. longus, glaber nisi basi albo-hirsutus, dentibus inaequalibus 0.5–1 mm. longis triangularibus acutis sparse albo-hirsutis. *Corolla* tubum multo superans, purpurea (ex Wilson); vexillum obovatum, 12 mm. longum, 6.5 mm. latum, in unguem 2 mm. latum sensim attenuatum, apice emarginatum; alae 11 mm. longae, 2.5 mm. latae, lamina supra auriculam obtusam 1 mm. longam gibba, ungui 5.5 mm. longo. *Stamina* diadelphea. *Ovarium* breviter stipitatum, glabrum, pauci-ovulatum; stigma pilis brevibus cinctum.

C. China: Fang. Flowers purple, growing on rocks. August 1901. Wilson, 2340! Herb. Kew.

Astragalus kialensis, N. D. Simpson. Sp. nov., ab *A. galeiforme*, L., habitu laxo, caulibus gracilioribus, racemis multo minoribus ad 2.5 cm. longis, foliolis parvis ad 8 mm. longis cinerascensibus facile distinguendus.

Herba incano-pubescent; caules ascendentes, superne angulati, flexuosi, parce ramosi, circa 40 cm. longi, pilis brevissimis albis basifixis vestiti. *Folia* ad 5 cm. longa, petiolis circa 6 mm. longis, ad 13-juga; foliola elliptico-oblonga, obtusa vel acuta, saepe mucronulata, majora 8 mm. longa, 3.5 mm. lata, breviter petiolulata, supra glabra, subtus scabrido-hirsuta; stipulae caulinae, liberae, ovato-acuminatae. *Racemi* multiflori, pedunculis axillaribus circa 3.5 cm. longis foliis minoribus, pilis nigris albisque sparse instructis; bracteae 3 cm. longae, lineares, acutae; bracteolae 2, 2 mm. longae, anguste lineares; pedicelli 2 mm. longi, dense nigro-hirsuti. *Calyx* campanulatus, 3 mm. longus, sparse nigro-pilosus, dentibus lanceolatis 1.5 mm. latis pilis nigris brevibus instructis. *Corolla* calycem multo excedens, sicco lutea; vexillum late obovatum, emarginatum, 9.5 mm. longum, 6 mm. latum, in unguem obscurum sensim

attenuatum ; alae 8.5 mm. longae, 1.5 mm. latae, ungui 3.5 mm. longo, auricula parva ; carina 7.5 mm. longa, 2.5 mm. lata, apice obtusa, ungui 3.5 mm. longo. *Stamina* diadelph. *Ovarium* stipitatum, 7-ovulatum, semi-biloculare ; stigma minute capitatum. *Legumen* juvenile glabrum.

Szechuen : Tongolo (Principauté de Kiala). Soulié, 332 ! Herb. Kew.

Astragalus minutebracteolatus, N. D. Simpson. Sp. nov., ab *A. Prattii*, N. D. Simpson, partibus fere omnibus minoribus, foliis 5-foliolatis, stipulis acuminatis, bracteis parvis, bracteolis minutissimis, calycis dentibus tubum aequantibus recedit.

Caulis flexuosus, pilis nigris albisque adpressis parce vestitus. *Folia* parva, 3.2 cm. longa, petiolis 3 mm. longis inclusis, 5-juga ; foliola obovata, majora 8.5 mm. longa, 5 mm. lata, apice saepe retusa, mucronulata, basi fere cuneata, petiolulis 0.5 mm. longis, supra glabra, subtus pilis albis strictis adpressis vestita ; stipulae lanceolatae, acutae, saepe acuminatae, vix 3 mm. longae. *Flores* 2, pedunculis ad 2 cm. longis foliis minoribus, dense nigro-hirsutis ; bractee lineares, ad 3 mm. longae, nigro-pilosae ; bracteolae 2, minutissimae 0.5 mm. longae ; pedicelli 2 mm. longi, pilis nigris dense vestiti. *Calyx* campanulatus, 3 mm. longus, densissime nigro-hirsutus, dentibus linearibus tubum aequantibus. *Corolla* purpurea (ex *Wilson*) ; vexillum orbiculare, 13 mm. longum, 10 mm. latum, apice emarginatum, in unguem 3 mm. longum sensim attenuatum ; alae 11 mm. longae, 3.5 mm. latae, lamina oblonga apice obtusa basi auriculata, ungui 4 mm. longo ; carina 13 mm. longa, 4 mm. lata, apice obtusa, ungui 4 mm. longo. *Stamina* diadelph. *Ovarium* pubescens, longe stipitatum, multi-ovulatum ; stigma conspicue barbatum.

W. China : flowers purple ; plants growing on heaths at an altitude of 3300 m. August 1903. *Wilson*, 3420 ! Herb. Kew.

Astragalus Monbeigii, N. D. Simpson. Sp. nov., ab *A. stricto*, Grah., foliis multo majoribus, pedunculis foliis minoribus, floribus circa 10 mm. longis, calycis dentibus longis subulatis distinguendus.

Herba multicaulis, rhizomate crasso ramoso ; caules adscendentes, striati, pilis albis nigrisque brevibus basifixis vestiti. *Folia* longissima 11 cm. longa, petiolis ad 3.5 cm. longis inclusis, imparipinnata, 5-10-juga ; rhachis saepe sulcata, pilis albis nigrisque laxè instructa ; foliola opposita, inferiora saepe alterna, late lanceolata, apice acuta, mucronulata, basi breviter petiolulata, ad 16 mm. longa, 8 mm. lata, supra glabra vel pilis

paucis vestita, subtus cinerascens margineque pilis albis longiusculis hirsuta; stipulae inter se connatae, petiolis liberae, lanceolatae, acutae, intus glabrae, extra pilis longis vestitae. *Racemi* ad 15-flori, densiusculi; pedunculi circa 9 cm. longi, foliis minores, sparse pilosi; bracteae lineares, acutae, vix 3 mm. longae; bracteolae nullae; pedicelli fere 1.5 mm. longi. *Calyx* breviter campanulatus, 2.5 mm. longus, dentibus anguste subulatis 4.5 mm. longis ut tubo pilis nigris albisque sparse obtectis. *Corolla* calyce multo longior; vexillum late obovatum, apice emarginatum, 10.5 mm. longum, 7 mm. latum, in unguem latum 3 mm. longum contractum; alae 8.5 mm. longae, 2 mm. latae, apice obtusae, basi obtuse auriculatae, ungui 2.5 mm. longo; carina 6 mm. longa, 2.5 mm. lata, ungui 2.5 mm. lata. *Stamina* diadelpa, filamentis inaequaliter connatis. *Ovarium* breviter stipitatum, 6-ovulatum, dense pubescens; stigma minute capitatum.

S.W. China: Monbeig. Herb. Kew.

Astragalus Prattii, N. D. Simpson. Sp. nov., ab *A. camptodonto*, Franch., planta humiliore, bracteolis brevissimis, calycis dentibus subulatis tubo longioribus, ovario pubescente distinguendus, ab *A. Balfouriano*, N. D. Simpson, foliis paucijugis, bracteolis minutis, pedunculis foliis brevioribus recedit.

Herba humilis, rhizomate ramoso gracili; caules breves, decumbentes, circa 6 cm. alti, pilis nigris albisque basifixis adpresse vestiti. *Folia* ad 3.5 cm. longa, petiolis ad 0.5 cm. longis, imparipinnata, 3-7-juga; foliola ovata, obtusa, mucronata, breviter petiolulata, majora 7 mm. longa, 4 mm. lata, supra glabra, subtus pilis albis adpressis instructa; stipulae caulinae, late lanceolatae, acutae, ad 4 mm. longae, glabrescentes. *Racemi* 2-4-flori, pedunculis 2.2 cm. longis foliis brevioribus pilis nigris sparse obtectis; bracteae lineares, 6.5 mm. longae, pilis nigris brevissimis sparse vestitae; bracteolae 2, minutae, circiter 1 mm. longae. *Calyx* campanulatus, 4 mm. longus, dense nigro-pilosus, dentibus linearibus acuminatis ad 5.5 mm. longis. *Corolla* calycem multo excedens; vexillum suborbiculare, 16 mm. longum, circa 14 mm. latum, apice emarginatum, sensim in unguem latum attenuatum, alas carinamque multo superans; alae 13 mm. longae, 5 mm. latae; lamina apice obtusa, fere retusa, inferne obtusissime auriculata, ungui 4 mm. longo; carina 13.5 mm. longa, 4 mm. lata, apice acutiuscula. *Stamina* diadelpa. *Ovarium* stipitatum, pilis paucis vestitum, multi-ovulatum, stigma conspicue barbatum.

Szechuen: Tachien-lu, altitude 2700 to 4050 m. Pratt, 573! Herb. Kew.

Astragalus Purdomii, N. D. Simpson. Sp. nov., ab *A. mongolico*, Bge. calyce bibracteolato, floribus purpurascens; tibis distinguendus.

Herba erecta; caulis canaliculatus, pilis albis brevissimis sparse instructus. *Folia* ad 8 mm. longa, petiolis 0.5 cm. longis inclusis, rhachide pilis albis adpresse vestita, circa 15-juga; foliola inferiora saepe alterna, superiora opposita, ovata vel oblonga, apice obtusa, mucronulata, distincte petiolulata, supra fere glabra, subtus pilis albis adpressis sparse instructa; stipulae caulinae, inter se liberae, lanceolatae, acutae, ad 4 mm. longae. *Racemi* 6-7-flori, pedunculis 4-5 cm. longis, pilis albis parce vestitis; bractae ad 3 mm. longae, lanceolatae, acutae, margine nigro-hirsutae; bracteolae 2, vix 2 mm. longae; pedicelli 3 mm. longi, pilis nigris adpressis dense vestiti. *Calyx* campanulatus, circa 6 mm. longus, pilis nigris sparse vestitus, dentibus subulatis ad 2 mm. longis, dense nigro-pilosis. *Corolla* sicco purpurascens, calycis tubum multo superans; vexillum late obovatum, emarginatum, 17 mm. longum, 8 mm. latum, in unguem 2 mm. longum sensim attenuatum; alae 15 mm. longae, 3.5 mm. latae, lamina apice rotundata basi obtuse auriculata, ungui 9 mm. longo; carina 15 mm. longa, 3.5 mm. lata, auricula obtusa 1 mm. longa, ungui 9 mm. longo. *Stamina* diadelphea. *Ovarium* glabrum, uniloculare, longissime stipitatum, circa 10-ovulatum, stylo glabro; stigma capitatum.

N. China: cultivated by Messrs. Veitch & Sons from seeds collected by Purdom.

Astragalus saxorum, N. D. Simpson. Sp. nov., ex descriptione ab *A. mongutense*, Lipsky, floribus 10 mm. longis, bracteis vix 1.5 mm. longis, calyce et tota planta albo-hirsuta recedit; ab *A. alpino*, Linn., indumento facile distinguendus.

Herba cinerea, partibus omnibus pilis albis dense vestita, rhizomate ramoso crasso; caules caespitosi, decumbentes, flexuosi, superne canaliculati, circa 20 cm. alti, pilis albis brevibus dense vestiti. *Folia* ad 6 cm. longa, petiolis ad 1.5 cm. longis inclusis, 7-10-juga; foliola inferiora alterna, oblonga vel obovata, 7 mm. longa, 3 mm. lata, apice saepe retusa, basi cuneata, breviter petiolulata, utrinque albo-hirsuta; stipulae triangulares, reflexae, acutae, 3 mm. longae, 3 mm. latae, supra glabrae subtus dense hirsutae. *Racemi* densiusculi, ad 16-flori, pedunculis 3.5 cm. longis folia subaequantibus; bractae brevissimae, circa 1 mm. longae, pedicellos subaequant. *Calyx* campanulatus, 2.5 mm. longus, dentibus acuminatis inaequalibus tubum subaequantibus. *Corolla* pallido-purpurea (ex Wilson); vexilli lamina suborbicularis, in unguem angustum

contracta, 8 mm. longa, 6 mm. lata, ungui 2 mm. longo, apice emarginata; alae 8.5 mm. longae, 1.5 mm. latae, apice obtusae, basi obtuse auriculatae, ungui 3.5 mm. longo; carina 9.5 mm. longa, 3 mm. lata, ungui 3.5 mm. longo. *Stamina* diadelpa, filamentis inaequaliter connatis. *Ovarium* breviter stipitatum, dense albo-pubescent, multi-ovulatum; stigma laterale.

Szechuen: flowers pale purple, growing in dry stony places. Wen-chuan. Alt. 900 to 1500 m. 30th May 1908. Wilson, 3789! Herb. Kew.

Astragalus Souliei, N. D. Simpson. Sp. nov., ab *A. wushanico*, N. D. Simpson, habitu gracillimo, caule pilis albis adpressis vestito, calycis dentibus inferioribus tubum subaequantibus, vexillo 7 mm. lato, alarum lamina unguem excedente distinguendus.

Herba gracillima, rhizomate ramoso descendente, multicaulis; caules tenues, flexuosi, circa 8 cm. longi, pilis albis basifixis sparse vestiti. *Folia* ad 7 cm. longa, petiolis inclusis, circa 3-6-juga; foliola opposita, ovato-orbicularia, apice obtusa, mucronulata, subsessilia 6.5 mm. longa, 5 mm. lata, utrinque pilis strictis albis sparsissime instructa; stipulae inter se connatae, triangulares. *Racemi* laxi, 6-flori, pedunculis ad 7 cm. longis pilis brevissimis sparse instructis; bracteae lineares, acutae, 3 mm. longae, pedicellis aequilongae; bracteolae nullae; pedicelli dense albo-hirsuti. *Calyx* campanulatus, 3.5 cm. longus, pilis paucis vestitus, dentibus inferioribus circa 3 mm. longis superioribus ad 2 mm. longis. *Corolla* calycem multo superans; vexillum late obcordatum, 11 mm. longum, 7 mm. latum; alae 10.5 mm. longae, 2.5 mm. latae, lamina acutiuscula basi obtuse auriculata, auricula 1 mm. longa, ungui 4 mm. longo; carina 9 mm. longa, 2.5 mm. lata, apice obtusa, basi auricula obtusa 1.5 mm. longa, ungui 4 mm. longo. *Stamina* diadelpa, filamentis inaequaliter connatis. *Ovarium* breviter stipitatum, pubescens, 10-ovulatum; stigma pilis brevissimis instructum.

Szechuen: Ta-tsien-lou. Soulié, 524! Herb. Kew.

Astragalus tungensis, N. D. Simpson. Sp. nov., ab *A. sutchuense* Franch., caulibus erectis strictis, foliolis pluribus, pedunculis folia excedentibus, habituque recedit.

Herba perennis, multicaulis; caules caespitosi, erecti, circa 30 cm. alti, pilis albis brevibus basifixis adpressis laxè vestiti. *Folia* ad 4 cm. longa, petiolis 0.3 cm. longis, 8-10-juga; foliola saepe opposita, late ovata, 6 mm. longa, 5 mm. lata, vel oblonga, 8 mm. longa, 2.5 mm. lata, breviter petiolulata, apice saepe retusa, utrinque pilis albis instructa, supra nigro-viridia, subtus

pallidiora; stipulae caulinares liberae, triangulares, acutae, 3 mm. longae, intus glabrae, extra pilis albis paucis vestitae. *Racemi* laxi, ad 10-flori, pedunculis folia excedentibus ad 5.5 cm. longis; bracteae lineares, ad 2 mm. longae, pedicellos subaequantes; bracteolae nullae; pedicelli ad 2.5 mm. longi. *Calyx* tubulosus, dense albo-hirsutus, 3 mm. longus, dentibus subulatis, superioribus 2 mm. longis, inferioribus 2.5 mm. longis. *Corolla* calycem multo excedens; vexillum oblongum, apice retusum, 12 mm. longum, 5.5 mm. latum in unguem angustum sensim attenuatum; alae 10 mm. longae, 2 mm. latae, apice acutae basi auricula obtusa magna 1 mm. longa adjecta, ungui 3 mm. longo; carina apice obtusa, 12 mm. longa, 3 mm. lata, ungui 4 mm. longo. *Ovarium* breviter stipitatum, multi-ovulatum, pilis minutissimis obscure pilosum; stigma minute barbatum. *Legumen* angustissimum, acutum, biloculare.

Szechuen: flowers pale yellow, Tung Valley, May 1904. Wilson, 3436! Herb. Kew.

Astragalus Veitchianus, N. D. Simpson. Sp. nov., ab *A. frigido*, A. Gray, racemis dense capitatis, bracteis linearibus parvis, calyce superne utrinque piloso, dentibus triangularibus 1.5 mm. longis distinguendus.

Herba glabriuscula, caule robusto valde striato ultra 40 cm. alto glaberrimo. *Folia* circa 14 cm. (petiolis inclusis) longa, 5-7-juga; foliola oblongo-ovata, majora 3.5 cm. longa, 1.3 mm. lata, apice obtusa, basi acuta, breviter petiolulata, supra glabra, subtus pilis albis longis vestita; stipulae a petiolis liberae, magnae, late lanceolatae, acutae, 2 cm. longae, circa 8 mm. latae, margine ciliatae. *Racemi* dense capitati, multiflori, pedunculis ad 13 cm. longis canaliculatis pilis nigris paucis instructis; bracteae lineares, obtusae, ad 1 cm. longae, pilis albis longe ciliatae; bracteolae nullae; pedicelli circa 2 mm. longi, pilis nigris dense vestiti. *Calyx* tubuloso-campanulatus, 7 mm. longus, extra pilis nigris paucissimis instructus, intus superne pilis nigris brevissimis dense vestitus, dentibus triangularibus 1.5 mm. longis extra glabris intus dense nigro-pilosis margine pilis albis longis ciliatis. *Corolla* calycem multo excedens, lutea (ex Wilson); vexillum obovatum, 18 mm. longum, 9 mm. latum, apice emarginatum in unguem sensim attenuatum; alae curvatae, 18 mm. longae, 2.5 mm. latae, lamina parva apice obtusa, auricula parva, ungui 13 mm. longo; carina obtusa, 17 mm. longa, 3 mm. lata, ungui 13 mm. longo. *Ovarium* longe stipitatum, dense nigro-hirsutum 6-ovulatum; stigma nudum.

W. China: flowers yellow, growing in grassland, altitude 3300 to 3600 m. July 1903. Wilson, 3441! Herb. Kew.

Astragalus Wilsonii, N. D. Simpson. Sp. nov., ab *A. Przewalskii*, Bge. planta pedicellis calycis dentibus ovariis exceptis glaberrima, foliolis ovato-oblongis facile distinguendus.

Herba erecta, glandulis conspicuis basi stipularum (et raro petiulorum) instructa; caulis glaber, canaliculatus, fistulosus, ultra 30 cm. altus. *Folia* laxa 4-7-foliolata, ad 9 cm. longa, petiolis 1.5 cm. longis; foliola opposita, interdum alterna, ovato-oblonga, majora 2.4 cm. longa, 1 cm. lata, apice obtusa, mucronulata breviter petiolulata, petiolulis ad 1.5 mm. longis, glaberrima, subtus pallidiora, nervis prominulis; stipulae magnae, ad 1.5 mm. longae et 8 mm. latae, liberae, caulinae, late ovatae, acutae, saepe reflexae, utrinque glabrae, margine saepe pilis brevissimis minute ciliatae, basi glandulosae. *Racemi* juveniles dense multiflori, deinde laxi, circa 16-flori, pedunculis glabris ad 9.5 cm. longis folia excedentibus; bracteae obovatae, obtusae, ad 7 mm. longae et 3.5 mm. latae, utrinque glabrae, margine ciliatae; bracteolae nullae; pedicelli ad 2.5 mm. longi, pilis nigris brevibus vestiti. *Calyx* campanulatus, glaberrimus, ad 6.5 mm. longus, dentibus aequalibus lanceolatis acutis ad 2.5 mm. longis extra glabris intus pilis nigris dense instructis. *Corolla* lutescens (ex *Wilson*), calycem multo superans; vexillum obovatum, apice emarginatum, 15 mm. longum, 7.5 mm. latum in unguem sensim attenuatum; alae 14.5 mm. longae, 1.5 mm. latae, lamina brevissima basi obtuse auriculata, ungui 9 mm. longo; carina 13.5 mm. longa, 3 mm. lata, ungui 8 mm. longo. *Stamina* diadelpa. *Ovarium* uniloculare, 6-ovulatum, longe stipitatum, dense nigro-pubescent; stigma nudum.

W. China: "Flowers yellowish. Grasslands, altitude 3900 to 4200 m. July 1903." *Wilson*, 3440! *Herb. Kew* (type).

Szechuen: Tongolo, Soulié, 303! Ta-t sien-lou, Soulié, 560! *Herb. Kew*.

When the stipules are erect the base is punctured by an insect, evidently for the purpose of obtaining the fluid secreted by the glands which occur inside the stipules. The glands are also found at the base of the petiulules together with a few hairs.

Astragalus wushanicus, N. D. Simpson. Sp. nov., ab *A. sinico*, Linn., planta perenne, indumento patulo, pedunculis foliis minoribus, vexillo obovato, ungui 2 mm. lato, alis acutis habituque differt.

Herba perennis, rhizomate funiculare descendente; caules caespitosi, parce ramosi, ad 12 cm. longi, pilis albis patulis dense vestiti. *Folia* longipetiolata, ad 14 cm. longa, petiolis 1-4.5 cm. longis inclusis, 5-8-juga; foliola opposita, late obovato-oblonga, majora 10 mm. longa, 8 mm. lata, apice retusa, basi

rotundata subsessilia, terminalia petiolulis 2-3 mm. longis, supra glabra, subtus pilis albis sparse oblecta; stipulae triangulares, parvae, inter se connatae, a petiolis liberae, margine pilis albis ciliatae. *Racemi* laxi, pauciflori; pedunculi 3 mm. longi, foliis multo minores; bracteae lineares, acutae, 1.5 mm. longae; bracteolae nullae; pedicelli 2.5 mm. (deinde ad 4 mm.) longi, dense albo-pilosi. *Calyx* breviter campanulatus, 3 mm. longus, dentibus subulatis inaequalibus 0.5-1.5 mm. longis ut tubo pilis albis basifixis sparse vestitis. *Corolla* calycem multo excedens; vexillum anguste obovatum, 11.5 mm. longum, 5 mm. latum, apice emarginatum, in unguem 2 mm. latum sensim attenuatum; alae 11 mm. longae, 1.5 mm. latae, lamina apice acuta basi auricula obtusa 1 mm. longa instructa, ungui 5.5 mm. longo; carina 10 mm. longa, 2.5 mm. lata, ungui 5.5 mm. longo. *Stamina* diadelpa filamentis inaequaliter connatis. *Ovarium* breviter stipitatum, pubescens, multi-ovulatum; stigma pilis brevissimis instructum. *Legumen* uniloculare, strigillosum, apice basique acutum.

Szechuen: N. Wushan. "A plant with pink flowers growing in clefts of the cliffs, rare." Henry, 7071! Herb. Kew.

Astragalus yangtzeanus, N. D. Simpson. Sp. nov., ab *A. sutchuense*, Franch., foliis 6-9-jugis, foliolis angustioribus rarisime retusis, calycibus majoribus, vexilli lamina in unguem latum sensim attenuata, carinae lamina multo minore, ovario dense albo-piloso distinguendus.

Herba, radice tenui ramoso, multicaulis; caules decumbentes, flexuosi, graciles, circa 25 cm. alti, pilis albis brevibus parce vestiti. *Folia* fere 5 cm. longa, saepe sessilia, rhachide basi petiolulorum pilis glandulosis instructo, ad 9-juga; foliola anguste oblonga, 8 mm. longa, 3 mm. lata, apice acutiuscula, basi subcuneata, brevissime petiolulata, utrinque pilis paucis albis oblecta; stipulae triangulares, acuminatae, ad 4.5 mm. longae, supra glabrae, subtus margineque pilosae, inter se liberae. *Racemi* laxi, ad 9-flori, pedunculis folia subaequalibus 2-3 cm. longis; bracteae filiformes, circa 2 mm. longae; bracteolae nullae, pedicelli dense albo-hirsuti, circa 2 mm. longi. *Calyx* campanulatus, 4 mm. longus, albo-pilosus, dentibus subulatis inaequalibus 1.5-2.5 mm. longis. *Corolla* calycem multo excedens, alba (ex *Wilson*); vexillum obovatum, emarginatum, 12 mm. longum, 5 mm. latum, in unguem latum sensim attenuatum; alae 10.5 mm. longae, 2 mm. latae, apice acutae, basi auriculatae, ungui 5 mm. longo; carina apice obtusa, 10 mm. longa, 2 mm. lata, ungui 5 mm. longo. *Ovarium* dense albo-pubescens, breviter stipitatum, stylo longo glabro; stigma brevissime pilosum.

Szechuen: growing on the bank of the Yangtze River near Lu-chou at 100–300 m. April 1908. Wilson, 3764 Herb. Kew.

The glands found in this species are similar to those found in *A. Wilsonii*, m., and *A. fangensis*, m. They are apparently confined to the base of the stipules and petiolules.

B. SYNOPSIS SPECIERUM SINENSIIUM.

Subgenus I.

Phaca, Bge. pro parte maxima.

Plantae herbaceae, annuae vel biennes vel perennes, inermes, caulescentes vel acaules, semper pilis basifixis instructae. *Flores* pedicellati, flavi, ochroleuci vel purpurei. *Calyx* persistens, campanulatus vel subtubulosus. *Corolla* decidua. *Stamina* diadelphica, rarissime monadelphica. *Stigma* nudum vel barbatum vel pilis minutissimis instructum.

Sect. I. UMBELLATAE, N. D. Simpson.

Herbae annuae, biennes vel perennes, caulescentes. *Flores* umbellati vel subumbellati, purpurascens vel raro albi. *Ovarium* subsessile. *Stigma* pilis minutis instructum.

1. *Astragalus sinicus*, L. Mant. i, 103 (1767); Bge. Astrag. Sp. Geront. ii, 2 (1869); * Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887); Franch. Pl. Delav. 160 (1889); Dunn et Tutchet, Fl. Kwangtung, in Kew Bull. Ad. Ser. x, 77 (1912).

Yunnan: Meng-tiz, Hancock, 90! Meng-tze, 1380 m., Henry, 9356!; 1500 m., Henry, 9356A! Wang-chau, Delavay, 1963! Yunnan-sen, Maire, 434!, 861!, 1771! Tali Valley, 2010–2400 m., Forrest, 4222! Tengyueh Valley, 1800 m., Forrest, 4987! Herb. Kew. et Edin.

Kwangtung: Fatshan, Wenyon! Herb. Kew.

Fokien: Lover's Leap, Foochow, Carles, 827! Herb. Kew. et Edin.

Chekiang: Ningpo, A. K. Schindler, 447!; Everard!; Oldham, 47! Herb. Kew. et Edin.

Hupei: Patung district, Henry, 3771! Ichang, Henry, 657!, 1137! Nanto, Wilson, 11! Hankow, Carles! Herb. Kew. et Edin.

Kiangsu: Shanghai, Wykeham-Perry!; Maingay, 514!; Carles, 280!; Bisset! Herb. Kew. et Edin.

* For the full reference see Bibliography.

China: (without definite locality) Herb. Linn. !; Pallas !; Fortune, A 82 !; Herb. Jorsyth !; Lindley !; Talbot in Herb. Sims ! Herb. Kew. et Linn. et Cantab.

var. **macrocalyx**, Ulbrich in Engl. Jahrb., xxxvi, Beibl. 82, 60 (1905) pro parte maxima.

Hupei: W. Hupei, Wilson, 331 ! Patung District, Henry, 4067 !, 5504 ! Ichang district, Henry, 3459 ! Herb. Kew. et Edin.

The variety is more robust than the type; there are no adventitious roots on the stems, the flowers are white, the calyx teeth are longer and are subulate, the lamina of the standard is gradually attenuated into the unguis, the wings are retuse at the apex, and the carina is narrower.

2. **Astragalus wushanicus**, N. D. Simpson. Sp. nov.

Szechuen: N. Wushan, Henry, 7071 ! Herb. Kew.

3. **Astragalus sciadophorus**, Franch. Pl. David. i, 84 (1884) ; *

Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

Chihli: Jehol, David cum 2151 mixtus ! Herb. Paris.

Sect. 2. DAHURICAE, N. D. Simpson.

Herbae caulescentes, erectae. *Flores* dense spicato-racemosi. *Calycis* dentes valde inaequales. *Stigma* pilis minutis instructum. *Legumen* erectum, arcuatum, complete biloculare.

4. **Astragalus dahuricus**, DC. Prodr. ii, 285 (1825) ; Bge.

Astrag. Sp. Geront. ii, 3 (1869) ; Franch. Pl. David. i, 86 (1884) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Shantung: Maingay, 44 ! Chefoo, Faber, 247 ! Herb. Kew.

Chihli: Peking, Bretschneider !, Hemeling ! Tai-han-ling, Bullock, 19 !; Carles ! Miao-feng-shan, Carles ! Herb. Kew. et Edin.

Shinking: Moukden, Webster, 140 ! Sungari River, H. E. M. James ! Herb. Kew.

Sect. 3. OLIGANTHAE, N. D. Simpson.

Herbae perennes, caulescentes, caulibus elongatis. *Stipulae* minutae. *Racemi* pauciflori, axillares. *Bracteae* subulatae, minutae; bracteolae nullae. *Vexillum* late obcordatum. *Stigma* conspicue barbatum. *Legumen* rectum, acutum.

* For the full reference see Bibliography.

5. *Astragalus complanatus*, R. Brown ex Bge. Astrag. Sp. Geront. ii, 1 (1869); Franch. Pl. David. i, 84 (1884); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Chihli: Peking hills, Carles! Herb. Edin.

N. China: Tatarinow! sub *A. oligantho*, Horan. Herb. Kew.
China: Staunton! Mus. Brit.

It is uncertain why Bunge associated R. Brown's name with this species. The "complanatus" written on the sheet of specimens in the British Museum collected by Staunton is not in the handwriting of R. Brown.

Sect. 4. BIBRACTEOLATAE, N. D. Simpson.

Herbae perennes, caulescentes. *Stipulae* a petiolo liberae. *Racemi* capitati, saepe pauciflori, axillares, pedunculati. *Bracteae* persistentes; bracteolae duae. *Calyx* campanulatus. *Corolla* calycem semper multo excedens, lutea vel purpurascens. *Vexillum* magnum plerumque suborbiculare, semper latum. *Ovarium* stipitatum. *Stigma* conspicue barbatum (sub oculo nudo).

6. *Astragalus camptodontus*, Franch. Pl. Delav. 160 (1889) pro parte maxima; Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904) pro parte.

Yunnan: Yen-tze-hay, 2700 m., Delavay, 1962!; 1969! (non 936!). Herb. Paris. et Kew.

No. 936 differs from the type (in several characters), and constitutes the new species *A. camptodontoides*.

7. *Astragalus camptodontoides*, N. D. Simpson. Sp. nov.

Yunnan: Lon Kong, Delavay, 936! Herb. Kew.

8. *Astragalus Balfourianus*, N. D. Simpson. Sp. nov., in Notes Bot. Gard., Edin., viii, p. 123 (1913).

Yunnan: at an altitude of 3600 m. on the eastern flank of the Lichiang Range, Forrest, 6606! (type). 3600-3900 m., Forrest, 6514! 3300-3600 m., Forrest, 2745! Herb. Edin.

9. *Astragalus tanguticus*, Batalin in Act. Hort. Petrop. xi, 485 (1891); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Kansu: Tangut, Grum-Grshmailo! Herb. Hort. Petrop.

10. *Astragalus minutebracteolatus*, N. D. Simpson. Sp. nov.

W. China: at an altitude of 3300 m., Wilson, 3420! Herb. Kew.

The specimens representing this species are mounted on the same sheet with a *Gueldenstaedtia*, and there are two labels with no distinguishing mark to show to which specimens they may belong. No. 3420 was collected in July in W. China, and is stated to have purple flowers, whereas No. 1753 is from Central China and was collected in March. From these facts the writer is inclined to believe that No. 3420 refers to the *Astragalus* rather than to the *Gueldenstaedtia*.

11. ***Astragalus Prattii***, N. D. Simpson. Sp. nov.

Szechuen : Ta-chien-lu, Pratt, 573 ! Herb. Kew.

12. ***Astragalus dolichochaete***, Diels in Notes Bot. Gard., Edin., v, 245 (1912).

Yunnan : on the eastern flank of the Lichiang Range, 2700–3300 m., Forrest, 2608 ! Herb. Edin.

13. ***Astragalus lichiangensis***, N. D. Simpson. Sp. nov., in Notes Bot. Gard., Edin., viii, p. 125 (1913).

Yunnan : on the eastern flank of the Lichiang Range at an altitude of 3000 m. Lat. $27^{\circ}25'N$, Forrest, 5920 ! Herb. Edin.

Sect. 5. EBRACTEOLATAE, N. D. Simpson.

Herbae perennes, caulescentes. *Stipulae* inter se liberae vel inferiores breviter connatae. *Racemi* pauciflori, breviter pedunculati, axillares. *Bractae* persistentes, bracteolae nullae. *Calyx* campanulatus. *Corolla* lutea vel purpurascens. *Vexillum* obovatum ; alae longi-auriculatae. *Ovarium* pilosum, longe stipitatum ; stigma barbatum.

14. ***Astragalus Craibianus***, N. D. Simpson. Sp. nov.

W. China : at an altitude of 3900 m., Wilson, 3424 ! (type), 3445 ! Herb. Kew.

15. ***Astragalus coronilloides***, Ulbrich in Engler Bot. Jahrb., vol. 1, Beibl. 110, p. 14.

Szechuen : W. Hupeh, Wilson, 2286 ! Herb. Kew. et Edin. ; Fang, Wilson, 2386 ! Herb. Berol.

Sect. 6. HEMIPHFRAGMIUM, Bge.

Herbae caulescentes. *Stipulae* a petiolo liberae. *Racemi* axillares, floribus plerumque purpurascensibus. *Calyx* campanulatus. *Stamina* diadelphe vel raro monadelphe. *Ovarium* stipitatum ; stigma nudum vel pilis minutis obscure instructum.

16. *Astragalus Souliei*, N. D. Simpson. Sp. nov.
Szechuen : Ta-tsien-lu, Soulié, 524 ! Herb. Kew.
17. *Astragalus sutchuensis*, Franch. Pl. Delav. 160 (1889) ;
Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).
Szechuen : Tchong-kin, Delavay, 2294 ! Mount Omei, 1050
m., Faber, 750 !, 753 ! ; Henry, 8979 ! Herb. Paris. et Kew.
Hupeh : Ichang, Henry, 763 !, 764 !, 1352 ! Patung, Yangtze,
Wilson, 383A !, 3443 ! Ningpo Mts., Faber ! Nanto, Henry,
6374 ! Herb. Kew.
Cult. Messrs. Veitch & Sons from seeds collected by Wilson,
1660 ! Herb. Kew.
18. *Astragalus tungensis*, N. D. Simpson. Sp. nov.
Szechuen : Tung Valley, Wilson, 3436 ! Herb. Kew.
19. *Astragalus fangensis*, N. D. Simpson. Sp. nov.
Central China : Fang, Wilson, 2340 ! Herb. Kew.
20. *Astragalus yangtzeanus*, N. D. Simpson. Sp. nov.
Szechuen : on the banks of the Yangtze River, Lu-chou,
Wilson, 3764 ! Herb. Kew.
21. *Astragalus saxorum*, N. D. Simpson. Sp. nov.
Szechuen : Wen chuan, alt. 900-1500 m., Wilson, 3789 !
Herb. Kew.
22. *Astragalus pullus*, N. D. Simpson. Sp. nov. in Notes Bot.
Gard., Edin., viii, p. 125 (1913).
Yunnan : alt. 3000-3150 m. on the eastern flank of the
Lichiang Range. June 1906. Forrest, 2379 ! Herb. Edin.
et Kew.
23. *Astragalus Monbeigii*, N. D. Simpson. Sp. nov.
S.W. China : Monbeig ! Herb. Kew.
24. *Astragalus nigrescens*, Franch. Pl. Delav. 162 (1890) ;
Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).
Yunnan : Mt. Hee-chan-men, above Lan-kong, 3000 m.,
Delavay, 1684 ! Herb. Kew.
25. *Astragalus polycladus*, Bur. et Franch. in Journ. de
Bot. v, 23 (1891) ; Forbes et Hemsl. in Journ. Linn. Soc.
xxxvi, 459 (1904).
Szechuen : Ta-tsien-lu, Bonvalot et Prince Henri ! ; Soulié,

828 !; 2700–4050 m., Pratt, 210 ! Tongolo, Soulié, 700 ! Herb. Paris. et Kew.

W. China : 2400 m., Wilson, 3442 !; 3000–3300 m., Wilson, 3439 ! Herb. Kew.

26. *Astragalus tataricus*, Franch. Pl. David. i, 87 (1884) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 167 (1887).

A. hippocrepidis, Dunn in Journ. Linn. Soc. xxxix, 421 (1911) non Benth.

Chihli : Jehol, David, 2151 ! Herb. Paris.

Kansu : Tangut, Przewalski ! Herb. Kew.

27. *Astragalus Davidii*, Franch. Pl. David. ii, 32 (1885) ; Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Szechuen : Moupin, David ! Herb. Paris.

28. *Astragalus chrysopterus*, Bge. in Mél. Biol. x, 51 (1877) ; * Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Kansu : Przewalski, 164 ! Herb. Hort. Petrop.

N. China : Potanin ! Herb. Hort. Petrop.

29. *Astragalus Hancockii*, Bge. in Mél. Biol. x, 640 (1877) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Chihli : Siao-wu-tai-shan, Hancock !, Moellendorff ! Herb. Hort. Petrop.

30. *Astragalus monadelphus*, Bge. in Mél. Biol. x, 52 (1877) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

Kansu : Przewalski ! Herb. Hort. Petrop.

31. *Astragalus Przewalskii*, Bge. in Mél. Biol. x, 52 (1877) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

Szechuen : Potanin ! Herb. Hort. Petrop.

Kansu : Tangut province, Przewalski, 263 ! Herb. Hort. Petrop.

Sect. 7. SKYTHROPOS, N. D. Simpson.

Herbae subacaules. *Racemi* conferti, interdum subumbellati, pedunculis scapiformibus. *Flores* purpurei vel lutei. *Bracteolae* duae vel nullae. *Calyx* campanulatus longe pilosus. *Ovarium* stipitatum.

32. *Astragalus skythropos*, Bge. in Mél. Biol. x, 51 (1877) ; Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

Kansu : Tangut, Przewalski ! Khan-czuk, 4100 m. ; Szi-ning-fu, L. de Loczy, 24B ! Herb. Kew. et Budapest.

* For the full reference see Bibliography.

33. *Astragalus tatsiensis*, Bur. et Franch. in Journ. de Bot. v, 23 (1891); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Szechuen: Ta-tsien-lou, Bonvalot et Prince Henri! Tongolo, Soulié, 710! Herb. Paris. et Kew.

34. *Astragalus yunnanensis*, Franch. Pl. Delav. 162 (1890); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Yunnan: Lichiang, Delavay, 252! Eastern flank of the Lichiang Range, alt. 3300 m., Forrest, 2750! alt. 3600-3900 m., Forrest, 5995! Herb. Paris. et Kew. et Edin.

forma *elongatus*, N. D. Simpson, forma nov.

Planta caulibus elongatis, foliis utrinque pilosis, ovario turgido.

Yunnan: N.W., alt. 4800 m., F. Kingdon Ward, 26! Herb. Edin.

The bracteoles in this species may be deciduous as they are sometimes absent.

There was formerly some doubt as to the genus of this species, but the writer has seen fruiting specimens of this (or an allied) species from Kumaon which undoubtedly refer it to the genus *Astragalus*.

Sect. 8. HEMIPHACA, Bge.

Herbae caulescentes. *Stipulae* a petiolo liberae. *Racemi* multiflori, floribus purpurascenscentibus vel ochroleucis, carina violaceo-picta. *Calyx* campanulatus. *Ovarium* sessile. *Stigma* nudum.

35. *Astragalus capillipes*, Fisch. ex Bge. Astrag. Sp. Geront. ii, 21 (1869); Franch. Pl. David. i, 85 (1884); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Chihli: near Peking, Fangshan, Carles!; near Peking, Bushell! Herb. Kew. et Edin.

N. China: Tatarinow, sub *A. indigoferoide*, Horan! Herb. Kew.

36. *Astragalus melilotoides*, Pall. Astrag. 51 (1800), t. 41; Bge. Enum. Pl. Chin. Bor. 17 (1834); * Bge. Astrag. Sp. Geront. ii, 21 (1869); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

A. tenuis, Turcz. in Bull. Soc. Nat. Mosc. 90 (1838) nomen; Turcz. Fl. Baic-Dahur. i, 324 (1842); Bge. Astrag. Sp. Geront. ii,

* For the full reference see Bibliography.

21 (1869); Franch. Pl. David. i, 85 et 86 (1884); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 167 (1887).

Kansu: Kazan, L. de Loczy, 197b. ! Herb. Budapest.

Shensi: Hort. Kew. seeds from Piccolo, 218! Herb. Kew.

Chihli: Peking, Bretschneider!; Bushell!; Williams in Herb. Hance, 11,456!, 12,469! Jehol, David in Herb. Hance, 12,469! Herb. Kew.

Shantung: hills near Chi-ning-chow, F. N. Meyer, 254! Herb. Kew.

W. China: 2100 m. alt., Wilson, 3431! Herb. Kew.

37. *Astragalus dependens*, Bge. in Mém. Biol. x, 640 (1877); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Kansu: Piasezky! Herb. Hort. Petrop.

38. *Astragalus Loczii*, Kanitz.* Pl. Exped. Szechenyi, Asia Centr. 17 (1891); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Kansu: Nan-san, L. de Loczy, 78! Herb. Budapest.

Sect. 9. POLYPHYLLAE, N. D. Simpson.

Herbae perennes, caulescentes, erectae. *Racemi* laxi, pauciflori. *Flores* bibracteolati, sicco purpurei; pedunculi foliis minores. *Ovarium* uniloculare, glabrum, longe stipitatum, stipite calycem multo excedente.

39. *Astragalus Purdomii*, N. D. Simpson. Sp. nov.

N. China: cultivated by Messrs. Veitch & Sons from seeds collected by Purdom.

Sect. 10. CENANTRUM, Bge.

Herbae caulescentes, erectae. *Stipulae* a petiolo liberae. *Racemi* longe pedunculati, conferti vel elongati, interdum subumbellati. *Bracteae* persistentes rarissime (cf. *A. Duclouxii*) caducae; bracteolae nullae. *Calyx* campanulatus. *Corolla* flava vel ochroleuca. *Ovarium* stipitatum, uniloculare; stigma nudum.

40. *Astragalus Henryi*, Oliver in Hook. Icon. Plant. xx, 1959 (1891); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Neodielsia polyantha, Harms in Engl. Jahrb. xxxvi, Beibl. 82, p. 68 (1905)—fide Ulbrich in Engl. Jahrb. l, Beibl. 110, p. 16 (1913).

Hupei: Henry, 6902!; Wilson, 2373! Herb. Kew. et Edin.

* Var. *scaposa*, Kanitz = *Oxytropis Kanitzii*, N. D. Simpson, comb. nov.

41. *Astragalus Duclouxii*, N. D. Simpson. Sp. nov.
Yunnan : Ducloux, 799 ! Herb. Kew.
42. *Astragalus Wilsonii*, N. D. Simpson. Sp. nov.
Szechuen : Tongolo, Soulié, 303 ! Ta-tsien-lu, Soulié, 560 !
Herb. Kew.
W. China : 3900-4200 m., Wilson, 3440 ! (type). Herb. Kew.
43. *Astragalus Moellendorffii*, Bge. in Mém. Biol. x, 641 (1877);
Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).
Chihli : Siao-wu-tai-shan, Moellendorff !, Hancock ! Herb.
Hort. Petrop.
44. *Astragalus frigidus*, A. Gray in Proc. Amer. Acad. vi,
219 (1864).
Sungari River near Kirin, H. E. M. James ! Herb. Kew.
45. *Astragalus Veitchianus*, N. D. Simpson. Sp. nov.
W. China : alt. 3300-3600 m., July 1903, Wilson, 3441 !
Herb. Kew.
46. *Astragalus tongolensis*, Ulbrich in Engl. Bot. Jahrb. l.
Beibl. 110, p. 12.
Tachienlu, Soulié, 2409 ! Tongolo, Tcheto, Soulié, 2523 !
Olongche, Soulié, 2524 ! Herb. Berol.
47. *Astragalus floridus*, Benth. ex Bge. Astrag. Sp. Geront. ii,
28 (1869) ; Baker in Hook. fil. Fl. Brit. Ind. ii, 127 (1876) ;
Dunn in Journ. Linn. Soc. xxxix, 421 (1911).
Szechuen : Tachienlu, 2700-3050 m., Pratt, 549 ! Soulié,
537 ! Herb. Kew.
W. China : 3150 m., Wilson, 3444 ! Herb. Kew.

Sect. II. CENANTROIDES, N. D. Simpson.

Herbae caulescentes, erectae. *Racemi* densiflori, pedunculis folia subaequantibus. *Flores* bibracteolati, flavi. *Calyx* subtubulosus, dentibus parvis dense nigro-pilosis. *Ovarium* stipitatum, uniloculare, dense pubescens.

48. *Astragalus Arnoldianus*, N. D. Simpson. Sp. nov.
Szechuen : Wilson, 3797 ! Herb. Kew.

Sect. 12. NIGRICANTES, N. D. Simpson.

Herbae perennes, caulescentes, erectae, caulibus pilis nigris dense vestitis. *Racemi* densiflori, terminales. *Flores* lutei, bibracteolati ; bracteae persistentes. *Ovarium* sessile, glabrum, semi-biloculare.

49. **Astragalus Forrestii**, N. D. Simpson. Sp. nov., in Notes Bot. Gard., Edin., viii, p. 124 (1913).

Yunnan: western flank of the Lichiang Range. Lat. 27° 25' N., 3300 m. June 1910, Forrest, 6041! Herb. Edin.

Sect. 13. DIPLOTHECAE, Bge.

Herbae perennes subglabrae vel incano-pubescentes. *Stipulae* liberae. *Bracteae* persistentes; bracteolae duae. *Flores* flavi; pedunculi axillares. *Calyx* campanulatus. *Ovarium* longe stipitatum, biloculare vel semi-biloculare; stigma nudum.

50. **Astragalus graveolens**, Buch-Ham. Wall. Cat. 5929 ex Bge. Astrag. Sp. Geront. ii, 31 (1869); Baker in Hook. fil. Fl. Brit. Ind. ii, 131 (1876); Franch. Pl. Delav. 163 (1890); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Yunnan: Hoang-kia-piu, near Ta-li, Delavay, 1133! Herb. Kew.

51. **Astragalus moupinensis**, Franch. Pl. David. ii, 31 (1885); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Szechuen: Moupin, Houg-thin-chan, David, 142! Herb. Paris.

52. **Astragalus kialensis**, N. D. Simpson. Sp. nov.

Szechuen: Tongolo, Soulié, 332! Herb. Kew.

53. **Astragalus chinensis**, Linn. fil. Dec. Pl. Rar. i, 5 (1762), t. 3; Linn. Sp. Pl. Ed. ii, 1066 (1763); Bge. Astrag. Sp. Geront. ii, 32 (1869); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Chihli: Tientsin, Carles!; T. L. Bullock, 97! Herb. Kew. et Edin.

Shinking: west of Chienshan, Ross, 538! Herb. Kew.

Mi-hai city-plain, Faber, 1648! Herb. Kew.

Sect. 14. CHLOROSTACHYS, Bge.

Herbae affines sect. 10 Cenantro sed fructu biloculare et bracteis caducis. *Bracteolae* duae. *Flores* flavescens vel ochroleuci. *Calyx* campanulatus. *Ovarium* stipitatum, biloculare; stigma nudum.

54. **Astragalus Englerianus**, Ulbr. in Eng. Jahrb. xxxvi, Beibl. 82, 60 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

Yunnan: Mengtze, 2100 m., Henry, 9783!; 1800 m., 9783A! Herb. Berol. et Kew.

Cult. Hort. Kew! Herb. Kew.

Sect. 15. MYOBROMA, Bge.

Herbae acaules, pube alba. *Stipulae* petiolo adnatae. *Racemi* subsessiles pauciflori. *Bracteae* membranaceae; bracteolae nullae. *Calyx* tubulosus. *Corolla* flava; stigma nudum.

55. *Astragalus acaulis*, Baker in Hook. fil. Fl. Brit. Ind. ii, 132 (1876).

A. litangensis, Bur. et Franch. in Journ. de Bot. v, 24 (1891); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Yunnan: on the western flank of the Lichiang Range, 3300–3600 m., Forrest, 5763! A-tun-tsi, 4200–4500 m., Kingdon Ward, 30! Herb. Edin.

Szechuen: Litang, Bonvalot et Prince Henri! Tongolo, Soulié, 711! Herb. Paris. et Kew.

There is considerable variation in the amount of indumentum in these specimens, but in each case where it is present the type of hair is the same. The specimen from Tongolo is more hairy and has slightly smaller flowers than the type specimen and those from Yunnan.

PLANTA INCERTAE SEDIS.

56. *Astragalus glanduliferus*, Debeaux. Fl. Tientsin, 16 (1879); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 165 (1887).

Chihli: Tientsin, Peiho river, Debeaux.

The author of this species gives as its affinities *A. melilotoides* and *A. chinensis*; but it is impossible from the description alone to decide to which section it rightly belongs.

Subgenus II.

Cercidothrix, Bge.

Plantae herbaceae vel suffruticosae, perennes, caulescentes vel subacaules, inermes, pilis medifixis vestitae. *Flores* racemosi vel capitati, lutei vel purpurascens. *Calyx* campanulatus vel tubulosus. *Petala* glabra. *Legumina* saepissime bilocularia.

Sect. I. EUODMUS, Bge.

Herbae perennes, caulibus erectis. *Calyx* tubuloso-campanulatus. *Flores* flavescens. *Ovarium* glabrum. *Legumina* erecta.

57. *Astragalus uliginosus*, Linn. Sp. Pl. 757 (1753); Bge. Astrag. Sp. Geront. ii, 168 (1869).

Shinking: Chang-pei-shan, 300–2250 m., H. E. M. James! Herb. Kew.

Sect. 2. CRACCINA, Bge.

Plantae caulescentes, basi sublignescentes. *Calyx* campanulatus. *Flores* laxo racemosi, purpurascens. *Legumina* recta.

58. **Astragalus Biondianus**, Ulbrich in Engl. Jahrb. xxxvi, Beibl. 82, 62 (1905); Dunn in Journ. Linn. Soc. xxxvi, 421 (1911).

Shensi: In-fan-to, Giraldis, 4244! Herb. Berol.

59. **Astragalus variabilis**, Bge. in Mém. Biol. x, 53 (1877).

Kansu: Kan-sou-fu, L. de Loczy! Herb. Budapest.

Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 167 (1887), refer to a specimen collected outside China.

Sect. 3. ORNITHOPODIUM, Bge.

Plantae herbaceae, basi saepe sublignescens, caulescentes. *Calyx* campanulatus. *Flores* racemosi, purpurascens. *Legumina* arcuata.

60. **Astragalus leiansanicus**, Ulbrich in Engl. Jahrb. xxxvi, Beibl. 82, 62 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

A. Stevenianus, Ulbrich l.c. et Dunn l.c. non DC. Shensi: Lean-san, Giraldis, 4241! Po-uo-li, Giraldis, 7060! Ki-fan, Giraldis, 705! Herb. Berol.

61. **Astragalus longispicatus**, Ulbrich in Engl. Jahrb. xxxvi, Beibl. 82, 61 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

Shensi: Luo-y-san, Giraldis, 4256! Herb. Berol.

Sect. 4. ONOBRYCHIMUM, Bge.

Plantae herbaceae. *Stipulae* a petiolo liberae. *Pedunculi* axillares. *Bracteolae* nullae. *Flores* dense capitati, purpurascens. *Legumina* bilocularia, erecta.

62. **Astragalus adsurgens**, Pall. Sp. Astrag. 40, t. 31 (1800); Bge. Enum. Pl. Chin. Bor. 17 (1834); Bge. Astrag. Sp. Geront. ii, 184 (1869); Franch. Pl. David. i, 88 (1884); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 164 (1887).

Chihli: Mong-tchun, F. N. Meyer, 301! Peiho River, Moellendorff in Herb. Hance, 6502! Herb. Kew.

Shinking: Sungari River and at Kirin, H.E.M. James! Herb. Kew.

W. China: altitude 1950 m. Wilson, 3428! Herb. Kew.

Sect. 5. BRACHYCEPHALAE, N. D. Simpson.

Plantae herbaceae, caulibus elongatis. *Pedunculi* axillares, mox folia multo excedentes. *Bracteolae* duae. *Calyx* campanulatus dentibus subulatis. *Flores* umbellati, vexillo non producto, sine ungue vero, alis interdum bi-auriculatis. *Legumina* bilocularia, recta, sessilia.

63. *Astragalus bhotanensis*, Baker in Hook. fil. Fl. Brit. Ind. ii, 126 (1876).

A. brachycephalus, Franch. Pl. Delav. 161 (1890); Forbes et Hemsl. in Journ. Linn. Soc. xxxvi, 459 (1904).

Yunnan: Tapin-tze, Delavay, 567! North of Yun-nan-fu, 2100-2400 m., Forrest, 1127! Yun-nan-sen, Maire, 206!, 1435!, 2168!, 2643! Herb. Kew. et Edin.

Sect. 6. TRACHYCERCIS, Bge.

Herbae humiles, caulibus brevissimis basi lignescentibus. *Flores* brevissime pedunculati; bracteolae nullae. *Calyx* tubulosus, albo-pilosus. *Alarum* carinaeque unguis a vagina filamentorum liberae.

64. *Astragalus Giraladianus*, Ulbrich in Engl. Jahrb. Beibl. 82, 64 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

Shensi: In-fan-to, Giralaldi, 4277! Herb. Berol.

65. *Astragalus scaberrimus*, Bge. Enum. Pl. Chin. Bor. 17 (1834); Bge. Astrag. Sp. Geront. ii, 197 (1869); Franch. Pl. David. i, 88 (1884); Forbes et Hemsl. in Journ. Linn. Soc. xxiii, 166 (1887).

A. Harmsii, Ulbrich in Engl. Jahrb. xxxvi, Beibl. 82, 63 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

Shensi: Ki-fou-shan, Giralaldi, 4236! Lian-shan, Giralaldi, 4235! Herb. Berol. (type of *A. Harmsii*).

Chihli: Peking, Bretschneider!; Carles!; A. K. Schindler, 100!; Hemeling! Hei-lung-tan, Hancock, 11! Chieh-tai-ssu, A. K. Schindler, 19! Herb. Kew. et Edin. et Berol.

Shantung: Ching-chou-fu, Couling, 107! Herb. Edin.

N. China: Tatarinow! Herb. Kew.

China: (no definite locality) Bunge! Herb. Kew. et Edin.

Sect. 7. XIPHIDIUM, Bge.

Herbae caulibus erectis altius lignescentibus, pedunculis axillaribus folia multo excedentibus.

Stipulae a petiolis liberae; bracteolae nullae. *Calyx* tubulosus.

66. *Astragalus kifonsanicus*, Ulbrich in Engl. Jahrb. xxxvi, Beibl. 82, 64 (1905); Dunn in Journ. Linn. Soc. xxxix, 421 (1911).

Shensi: Ki-fou-san, Giralaldi, 706!, 4240!, 4243! Herb. Berol.

C. SPECIES EXCLUSAE.

Astragalus alaschanus, Bge., et *A. discolor*, Bge.

Dunn in Journ. Linn. Soc. xxxix, 421 (1911) includes these species in the list of Chinese plants. They were collected in 1873 by Przevalski, and, according to a map of Bretschneider, his route runs along the base of the Alaschan Mountains, and does not enter China.

Astragalus Laxmanni, Jacq.

Forbes and Hemsley include this species in the Index Florae Sinensis, i; it was, however, collected at Hami in Mongolia.

Astragalus coelestis, Diels != *Gueldenstaedtia coelestis*, N. D. Simpson, comb. nov.

Astragalus Loczii, Kanitz, var. *scaposa*, Kanitz != *Oxytropis Kanitzii*, N. D. Simpson, comb. nov.

D. BIBLIOGRAPHY.

The following is a list of the books and papers, in their chronological order, which have been quoted in the enumeration. The full reference is here given of those which have been quoted in brief in the foregoing part of the paper.

- 1753. Linnaeus, Species Plantarum, Ed. i.
- 1762. " fil., Decades Plantarum Rararum, i.
- 1763. " Sp. Pl. Ed. ii.
- 1767. " Mantissa, i.
- 1776. Jacquin, Hortus Botanicus Vindobonensis, iii.
- 1800. Pallas, Species Astragalorum.
- 1825. De Candolle, Prodromus systematis naturalis regni vegetabilis, ii.
- 1834. Bunge, Enumeratio Plantarum quas in China boreali collegit, A.B. in Mémoires des Savans Etrangers de St Pétersbourg, ii.
- 1838. Turczaninow, in Bulletin de la Soc. de Naturalistes de Moscou.
- 1842. Turczaninow, Flora Baicalensis-Dahuriae, i.
- 1864. Asa Gray, in Proceedings of the American Academy of Arts and Sciences, vi.
- 1868. Bunge, Astragali Species Gerontogaeae, i, in Mémoires de l'Académie Impériale des Sciences de St Pétersbourg, vii^{me} série, tome xi, No. 16.

1869. Bunge, Astrag. Sp. Geront. ii, l.c. vii^{me} série, tome xv, No. 1.
 1876. Baker, Astragali, in Hooker fil. Flora of British India, ii.
 1877. Bunge, in Maximowicz, Mélanges Biologiques, x, in Bulletin de l'Académie Impériale des Sciences de St Pétersbourg, xxiv.
 1879. Debeaux, Florule de Tientsin, in Actes de la Société Linnéenne de Bordeaux, xxxiii, 1^{re} et 2^e livraisons.
 1884. Franchet, Plantae Davidianae, i, in Nouvelles Archives du Muséum de Paris, v, 2^{me} série.
 1885. Franchet, Pl. David. ii, l.c. viii, 2^{me} série.
 1887. Forbes et Hemsley, Index Florae Sinensis, i, in the Journal of the Linnean Society, xxiii.
 1889 and 1890. Franchet, Plantae Delavayanae.
 1891. Oliver, in Hooker, Icones Plantarum, xx.
 1891. Bureau et Franchet, in Journal de Botanique, v.
 1891. Kanitz, Plantarum in expeditione speculatoria comitis Béla Széchenyi a Ludovico de Loczi in Asia Centrali collectarum enumeratio.
 1891. Batalin, in Acta Horti Petropolitani, xi.
 1904. Forbes et Hemsley, Index Florae Sinensis, Supplement, in Journ. Linn. Soc. xxxix.
 1905. Ulbrich, in Engler, Botanische Jahrbucher, xxxvi, Beiblatt 82.
 1911. Dunn, Index Florae Sinensis, Supplement, in Journ., Linn. Soc. xxxix.
 1912. Dunn and Tutcher, Flora of Kwangtung, in Kew Bulletin, Additional Series, x.
 1912. Diels, in Notes from the Royal Botanic Garden, Edinburgh, v.
 1913. N. D. Simpson, in Notes from the Royal Botanic Garden, Edinburgh, viii.
 1913. Ulbrich, in Engler, Botanische Jahrbucher, l, Beiblatt 110.